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X-34 Completes Critical Milestone

The first wing assembly for NASA's X-34 technology demonstrator has completed qualification tests and has been shipped to the prime contractor, Orbital Sciences Corporation, Dulles, Va., where it has been mated to the X-34 test article under construction there.

The ultimate objective of these efforts is to dramatically reduce the cost of placing payloads into space.

Integration of the wing assembly with the test article fuselage marks a major milestone in the program. Flights of the air-launched X-34 are scheduled to begin next year in conjunction with flights of its larger and more advanced sister ship, the X-33. The X-33 and X-34 programs are major assignments of the Space Transportation Programs Office at Marshall.

The newly qualified X-34 wing assembly, intended for flight, has been installed, initially, on a full-scale X-34 test article at Orbital. The test article will be used for X-34 verification and certification. This first wing assembly will ultimately fly aboard one of two flight vehicles also under construction at Orbital.

The sub-orbital X-34 and X-33 vehicles will demonstrate key technologies — at high speeds and high altitudes — leading toward the development of full scale, commercially operated reusable launch vehicles after the turn of the century. The ultimate objective of these efforts is to dramatically reduce the cost of placing payloads into space.

NASA photo by Dennis Olive

An Atlas III propulsion system configured with the Russian-designed RD-180 engine ignites as it undergoes a test at Marshall's Advanced Engine Test Facility July 29.

At Marshall's Advanced Engine Test Facility

Rocket Engine Completes Successful Test

by Deana Nunley

NASA engineers successfully tested a Russian-built rocket engine July 29 at Marshall. The test began with engine ignition at 7:55 p.m. CDT and lasted 10 seconds, as planned.

This marks the first time a Russian-built engine has been test fired at a U.S. government facility. Marshall is under a Space Act Agreement with Lockheed Martin Astronautics of Denver to provide a series of test firings of the Atlas III propulsion system configured with the Russian-designed RD-180 engine. The tests are designed to measure the performance of the Atlas III propulsion

*See **RD-180 Test** on page 5*

Following Passage of Congressional Ballot

Goldin Calls International Space Station Vote 'Incredible Vote of Confidence'

"This was a vote about what you've done, and this was a vote about what you are doing for the future of your country and, for that matter, for people around the world."

That's what NASA Administrator Dan Goldin told all NASA employees last week following passage of a significant Congressional vote regarding the future of the International Space Station. Goldin spoke over closed-circuit television to all employees.

"As you know, each year we have

*See **Space Station** on page 5*

NASA Research Announcement Seeks 'Future X' Proposals

by Deana Nunley

Marshall Center has issued a NASA Research Announcement soliciting proposals for "Future-X," the first in a continuous series of flight demonstrations to validate technologies beyond those contained in the X-33 and X-34 technology demonstration programs. Proposals are due by Oct.1.

The NASA Research Announcement calls for proposals for flight demonstrations of emerging technologies that require flight as a critical step in validating and maturing the technology. The technologies will be focused on substantially reducing the cost of space transportation.

In an effort to increase U.S. competitiveness in the worldwide commercial space transportation market and lower future government costs for space access, NASA is pursuing cutting-edge technologies that will dramatically lower the cost of getting to space. These advanced technology flight demonstrations are called Future-X.

"The Future-X series of demonstrations will push technology and clear the way for space development and exploration in the early years of the new century," said Gary E. Payton, deputy associate administrator for Aeronautics and Space Transportation Technology at NASA Headquarters, Washington, D.C.

The demonstrations will consist of flight vehicles or experiments to prove technologies that improve performance and lower development, production and operating costs of future earth-to-orbit and in-space transportation systems. Airframe system technologies will include propellant tanks, thermal protection systems, avionics and structures.

Propulsion system technologies will include main propulsion systems, propellants and high temperature materials.

"Future-X sets the stage for developing a new generation of space launch vehicles that will be built faster and cheaper than previous vehicles," said Frederick Bachtel, manager of the Space Transportation Programs Office at Marshall. "For the first time, NASA will be able to readily test and validate new, state-of-the-art space transportation technologies in flight."

Projected funding of about $90 million through fiscal year 2002 is anticipated with awards scheduled for December. Awards are dependent upon the number and content of selected proposals and availability of funds.

A single award is planned for a flight vehicle and multiple awards are anticipated for flight experiments.

An industry briefing on the announcement is set for 9 a.m. Aug. 7 at Marshall. NASA Research Announcement 8-22 is available at the following Web site: http://nais.msfc.nasa.gov/home.html

Around Marshall

'Storytelling' Sessions To Be Held Wednesday Afternoons at the U.S. Space & Rocket Center

As part of NASA's 40th anniversary celebration, the Marshall's Speakers Bureau is coordinating "storytelling" sessions to be held Wednesday afternoons during August at the U.S Space & Rocket Center. The 15-minute presentations will be given at 2 and 2:30 p.m. Today's speaker will be George Harsh, an aerospace engineer at Marshall and the speaker for Aug. 12 will be Bob Schwinghamer, associate director (technical).

Opportunity Available for Center Employees To Receive Separation Incentive Pay

A plan submitted by Marshall earlier this year authorizing the Center to offer an additional buyout opportunity to Marshall employees has been approved by NASA Headquarters.

Eligible employees who voluntarily leave NASA within this Aug. 1- Jan. 3, 1999 buyout period will receive an amount equal to their calculated severance pay entitlement, up to a maximum of $25,000. According to the plan approved by NASA Headquarters, this would be the last time that retirement eligibles would receive the maximum amount payable under the law. If an additional buyout is offered in FY99, the separation incentive pay will be reduced by an amount yet to be determined.

Applications must be submitted to Edwina Bressette, CO10, by close of business Dec. 10, or no later than two weeks before individual separation date if the date occurs before Dec. 10. For more information call Bressette in Marshall's Human Resources Office at 544-8115. If resigning, notify your administrative officer.

An Outplacement Program offering job assistance counseling, resume preparation assistance, and job search resources is available for employees seeking employment outside the Federal government. For assistance call Bob Norwood, Career Transition Assistance Program Center (CTAP) manager, at 961-1354. The CTAP Center is located in Bldg. 4200, room G-13.

Key Named Assistant to the Director Of S&E Directorate

Frank Key

Frank Key has been reassigned to the position of assistant to the director of Marshall's Science and Engineering Directorate.

Key, former deputy director of the Materials and Processes Laboratory, will support the S&E director in working closely with all the laboratories to resolve technical issues that are of critical importance to the Center's programs and projects, with special emphasis on the manufacturing and engineering processes.

Through the Summer Faculty Fellowship Program

Professors Conduct Space Research

by Joy Carter

Forty-nine professors from 18 states and Puerto Rico are participating in a hands-on educational experience to learn about the U.S. space program and conduct scientific space research.

The professors are taking part in the Summer Faculty Fellowship Program that will conclude this week at the Marshall Center.

"It's a 10-week program that pairs college and university professors with NASA researchers to conduct studies in various areas of science and engineering," said Dr. Jim Dowdy, university relations officer with Marshall's Education Programs Office.

"It's a win-win situation," added Dowdy. "Professors contribute to Marshall's science and engineering research objectives, while gaining valuable knowledge that they can take back to the classroom."

In addition to conducting research, the participants also attended weekly seminars to learn about Marshall programs and projects.

NASA photo by Danny Reeves

Dr. Gerald Smith (left), a physics professor at Pennsylvania State University in State College, is at Marshall participating in the Summer Faculty Fellowship Program. He is accompanied by student Kirby Meyer.

Later this week, the professors will present their research findings to NASA colleagues.

The Summer Faculty Fellowship Program was established by NASA in cooperation with the American Society of Engineering Education in 1966.

Through NASA and Industry Partnership

AST Demonstrates Air-Breathing Rocket Engine Propulsion

by Deana Nunley

NASA and its industry partners have completed a series of tests demonstrating all the operating phases of an air-breathing rocket engine.

This marks the first time for NASA to test all operating modes required to lift a vehicle from the launch pad to Earth's orbit using an air-breathing rocket engine. The tests represent a major milestone in NASA's efforts to develop technologies for air-breathing propulsion that could dramatically reduce the cost of getting to space. The research is spearheaded by the Advanced Space Transportation Program at the Marshall Center.

Through ground testing, engineers successfully evaluated components representing each phase of the climb to orbit. An air-breathing rocket engine will perform like a conventional rocket engine at take-off using stored oxidizer, but will shift to a mode similar to an airplane consuming oxygen from the air during the middle phase of flight.

When component testing ends later this year, NASA will begin building an engine for a flight demonstration as early as 2002.

NASA's industry partners in this effort are Aerojet Corp. of Sacramento, Calif.; Pratt and Whitney of West Palm Beach, Fla.; Rocketdyne of Canoga Park, Calif.; Astrox Corporation of Rockville, Md.; Pennsylvania State University at University Park; and the University of Alabama in Huntsville. Engine tests are being conducted at General Applied Sciences Laboratory in Ronkonkoma, N.Y.

Teachers Share Interest In Space Exploration

America's 55 Teachers of the Year along with teachers from 22 nations are sharing their interest in space exploration this week during the ninth annual International Space Camp at the U.S. Space & Rocket Center.

On Monday, the educators toured the Marshall Center where they received briefings at the Space Sciences Laboratory, Space Transportation Programs Office, Microgravity Research Program Office and Global Hydrology Research Office. They also visited the Space Station Engineering Mockup in Bldg. 4755 and the Space Station Manufacturing Facility in Bldg. 4708.

In addition, participants are spending the week conducting simulated space shuttle missions, studying crew systems, space shuttle operations and rocketry, and learning about international space agencies.

NASA sponsors the attendance of the teachers of the year from each of the 50 states and the five territories.

International participants represent countries including Argentina, Australia, Austria, Canada, Czech Republic, Denmark, Finland, Germany, Greece, Hungary, Italy, Mexico, Netherlands, New Zealand, Norway, South Africa, South Korea, Singapore, Spain, Sweden, Turkey the United Kingdom and the United States.

Marshall Center Employees Earn Snoopy Awards

Astronaut Jeffrey Williams presented Silver Snoopy Awards to Marshall Center Employees July 29. The Silver Snoopy Award is presented to employees in appreciation for their "professionalism, dedication and outstanding support that greatly enhanced flight safety and mission success while supporting the Space Shuttle, Space Transportation Program."

At right, Astronaut Jeffrey Williams presents Snoopy Awards to Richard Gladwin, left, CR 50, and Thomas Reed, CR32.

Above, Williams presents award to Judy Werner, CO01.

Above, Williams with award recipient Willie Love, CE01.

At right, Williams presents awards to Michael McLean, left, GP40, and Robert Whiteley, GP42.

NASA photos by Danny Reeves

Upcoming Events

Marshall Picnic Set for Aug. 22 At U.S. Space & Rocket Center

The Marshall Center Picnic, honoring NASA's 40th anniversary, is set for 4-9 p.m. Saturday, Aug. 22, at the U.S. Space & Rocket Center. All Marshall employees, on-site contractors and retirees are invited.

Coloring Contest

The deadline for the Marshall Picnic children's coloring contest is Aug. 7. This is a new event for children to participate in and win some great prizes — a Chattanooga, Tennessee Aquarium Package; Disney World, Vision Land Theme Park in Birmingham; Southern Adventures passes; and Toys R Us and movie theater gift certificates. First, second, and third place prizes will be awarded in age categories 2-4, 5-7 and 8-12 years old.

One of three scenes available on-line for the coloring contest.

There are three choices of space scenes located on the picnic homepage that your child can choose to color. Only one entry per child is allowed. Coloring scenes are at the Marshall Picnic homepage: http://picnic98.msfc.nasa.gov/

Complete the information at the bottom of the artwork and submit entries to MSFC/ED62/Monsi Roman no later than August 7. Coloring contest winners will be announced at the picnic.

Free Picnic Passes

Free picnic passes are available from your administrative officer. Only 6,000 passes were printed and every picnic attendee, including children, must have a pass to get into the park. A list of administrative officers and more information about the picnic are on the picnic homepage.

NASA photo by Dennis Olive

Super Guppy Delivers Space Station Hardware at Redstone Arsenal

The starboard truss segment, a main structural component of the International Space Station, was recently delivered to Marshall from Boeing aboard NASA's "Super Guppy" cargo aircraft. Marshall researchers are conducting tests on the truss.

RD-180 Test

Continued from page 1

system, which includes avionics and propellant tanks and lines, and how these components interact with the RD-180 engine.

Preliminary data indicate the test achieved good results. In the first of a series of three scheduled tests, the engine operated at a range from 74 to 90 percent power. About 500 special sensors are attached to the engine and Marshall's Advanced Engine Test Facility to gather information.

The data provided by this instrumentation will help engineers assess the performance of the engine configuration being tested. Examination of the data will continue for several days.

Space Station

Continued from page 1

numerous votes on the Space Station. And each year we have a referendum on what the American people feel about the performance of NASA. And, I'm happy to report that, last night (July 29) on the floor of the House, our appropriations bill won by a vote of 323 to 109," Goldin said.

The administrator called the passage "an incredible vote of confidence, considering that the Senate, on July 7, voted 2 to 1 in favor of the Space Station, 66 to 33."

Goldin attributed the successful vote to "the very dedicated people at NASA and to our contractors that worked hard night and day, seven days a week, with performance that is just world class, best in the world."

The administrator added, however, that "with this vote comes an obligation to continue to perform, to continue to produce, and to continue to live up to what we say we are going to do." Goldin also took note of the upcoming launch of STS-95, the first launch of Space Station, and the launch of AXAF in January 1999.

"So, we've done a lot. A lot more remains to be done. But I really wanted to talk to everyone today to just congratulate the wonderful NASA team on how well you're doing."

Employee Ads

Miscellaneous

★ Complete weight set with bench, 110 pounds total, $75. 534-1010
★ Golf clubs, Lynx "Master," irons 2-8, PW, $50. 350-7461
★ Sofa $150; two matching chairs $100; Frigidaire stovetop / ventilator $25; decorative curtain rods $30. 881-1249
★ Camper shell, full-size, SWB, $150; four 20-gallon propane tanks, $20 each. 852-3501
★ Electric organ, Lowery Jubilee, Model M-500, sheet music, $500. 881-6670
★ McCullough gas-powered blower, $20; office chair with arms, adjustable height, cloth, $45. 837-0085
★ Firewood, seasoned, you carry away, $20 per pickup truck load. 882-2076
★ Kerosene heater, $75; pool table, weight bench, barbell set. 883-0503
★ Window mounted air conditioners: Whirlpool, 5000 BTU, $100; Carrier, 7000 BTU, $135; Whirlpool washer, $100. 881-6040
★ Mitsubishi TS-5087, 50-inch rear-projection TV, digital comb filter, starsight, $2,675 obo. 551-1007
★ Rainbow vacuum cleaner, $350; 36" x 72" desk, $150; patio furniture, $200. 772-7842
★ Heat pump, York, 20-ton, split system, $600. 828-1127
★ 55-gallon aquarium with lighted hood, $125; twin bed, $50 Jet Stream Oven, $60. 461-0915.

Vehicles

★ 1995 Pontiac Firebird, T-tops, A/C, power, $11,400. 776-9118
★ 1989 Pontiac Bonneville, red, all power, $2,900. 931-967-8972
★ 1995 Ford Windstar, dual A/C, AM/FM cassette, cruise, remote entry, 65K miles, $11,200. 859-4156
★ 1993 Ford Escort LX, 5-speed, hatchback, green, air, 78K miles, $4,700 obo. 461-8706 leave message
★ 1996 Pontiac Transport van, equipped, $12,500. 772-7842
★ 1989 Honda Accord DX, 4-door, blue, cruise, 131K miles, $2,650 obo. 739-3915
★ 1986 Honda Prelude Si, red, 160K miles, original owner, CV joints, $3,300. 859-2962

Wanted

★ Repair manual for 1962 Chevrolet Impala, 4-door sedan with V-8 engine. 883-5114
★ Toyota Previa Minivan. 837-0085
★ 8 inch electric chain saw. 883-1933

Center Announcements

☞ ***Toastmasters* —** The NASA Lunar Nooners Toastmasters Club will meet at 11:30 a.m. Tuesday, August 11, in the Bldg. 4610 cafeteria conference room. All Marshall employees, contractors and friends are invited. **Contact:** Lee Johns, 544-5142

☞ ***AGFE* —** The next monthly meeting for the AGFE-Local 3434 is set for 11:30 a.m.-noon Tuesday, Aug. 11, in Bldg. 4200, room P-106.

☞ ***NARFE* —** The National Association of Retired Federal Employees (NARFE), Chapter 443, will meet at 9:30 a.m. Saturday, Aug. 8, at the Senior Center on Drake Avenue, Huntsville. Guests include U.S. Rep. Bud Cramer and Dr. Gil Aust. The program will be a political forum for candidates for the election of a representative to the U.S. Congress in the 5th district of Alabama. **Contact:** 837-0382 or 881-3168

☞ ***Ski Week 1999* —** The 8th annual NASA Ski Week will be hosted at Jackson Hole, Wyo., Jan. 30 - Feb 6, 1999. All Marshall employees, on-site contractors, retirees and family members are eligible to participate. **Contact:** 544-6568 or e-mail: Thomas.S.Dollman@msfc.nasa.gov

☞ ***Photographs Available* —** Group photographs taken during "Take Our Children to Work Day" at Marshall are ready for pickup at the Equal Opportunity Office in Bldg. 4200, Room 220.

☞ ***MARS Scuba Club* —** The MARS Scuba Club will host a picnic/dive/tune-up class at 11 a.m. Aug. 15 at the Madison Aquatic and Recreational Park. Members and non-members are invited. **Contact:** Andy Brown, 544-1584.

☞ ***SMTrends* —** The SMTrends '98 Factory Automation Exhibit is scheduled for 9 a.m.-4 p.m. Aug. 11-12 at the Von Braun Center. Exhibit activities include technical and hands-on workshops in the latest computer automation, SMT manufacturing and repair, robotics, testing and electronic packaging. For more information call 881-3569 or e-mail: smtrends@aol.comm
More information about this exhibit may be found at the following Web site:
http://www.bjrreps.com/smt98.html

Job Opportunities

CPP 98-94-PL, Management Support Assistant (Steno/OA), Executive Support Assistant (Steno/OA), GS-318-7/8, Observatory Projects Office, Office of the Manager. Closes Aug. 11.

CPP 98-77-CL, AST, Experimental Facilities Development, GS-801-14, Facilities Services Office, Engineering & COF Projects Division, Center Operations Directorate. Closes Aug. 12.

CPP 98-108-DC, AST, Measurement & Instrumentation, GS-855-7, S&E, Astrionics Laboratory, Optics Division. Closes Aug. 18.

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